04/27/2000
Revision B

TGHR Table Groundrules

* Changes in TGHR table must be identified with revision marks.
* A P1, P2,P3, etc. item numbering scheme must be used for payloads and X1, X2, X3, etc. for experiments.
* Once the TGHR table is baselined, the item number and description must remain together (from baseline to flight even if items are deleted or added) to avoid incorrect translation into the KSC database.
* Revision level of TGHR table will be denoted by date and alphabetical sequence.
* Groundrules are for corresponding columns in table.

1.0 ITEM

a. Each line item must be numbered.
b. Crew Compartment Configuration Drawing (CCCD, SGD32100XXX) crew compartment nomenclature must be used. Location, part number or subcomponent nomenclature should not be used, unless in a NOTE.
c. If there are multiple lockers with the same nomenclature, the requirements listed in the table will be performed for all of the lockers. List the quantity of lockers, if more than one.

2.0 MAXIMUM POWER INTERRUPTS

a. The maximum time allowed for a powered experiment to be without power.
b. Planned power interrupts occur during transfers between Orbiter and ground support equipment (GSE) battery power during late stow, scrub turnaround and early destow.
c. 28 +/- 4 Volts direct current (VDC), unless modified in the NOTE section.

3.0 ORIENTATION CONSTRAINTS

a. If critical, identify the orientation of a locker (containing item) during late stow, scrub turnaround, and/or early destow. Orientation may be unique for each configuration.
b. Temporary excursions may occur during weighing, cleaning, bagging, late stow, scrub turnaround, and early destow.

Options for Orientations are:

- UP, DOWN (lockers with doors or face/panel plates)
- HORIZONTAL (landing orientation)

c. Others will be clarified in the note section

4.0 LATE STOW

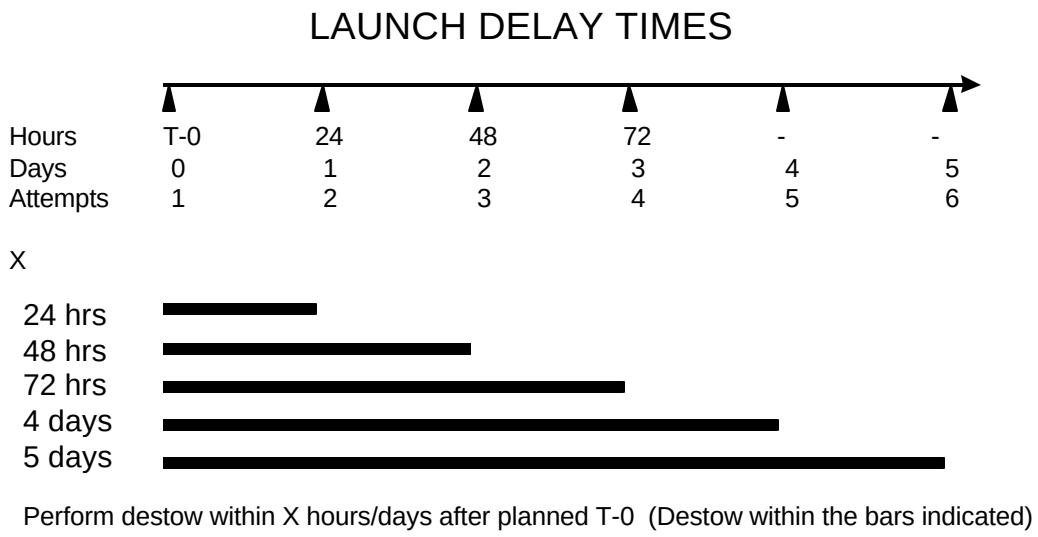
a. Stowage requirements are necessary only when hardware must be installed in a time less than or equal to three days prior to launch. All other hardware will be done as part of nominal stowage per CCCD and coordinated with KSC.
b. Items should be stowed in whole lockers/bags. Exceptions may be items such as refrigerator/freezer contents, etc.
c. All items may be installed earlier with mission management/representative approval. This will allow item installation after delivery to the pad.
d. ASP (Astronaut Support Personnel) stowed or crew worn items should not be identified in table.
e. Table lists installation times. Turnover times will be coordinated with KSC.
f. Time units are in L- (Launch minus) times.

Options for Late Stow times are:

- </= x days or equivalent x hours
- </= 24 Hrs.
- </= specific stow hours (less than 24, requires KSC countdown working group approval).

5.0 LAUNCH DELAY

a. Table will identify when the hardware must be removed for refurbishment/replacement in 24 hour increments up to and including 72 hours and in day increments thereafter. Reinstallation will be performed per original stowage time.
b. The maximum launch delay time, which requires TGHR table documentation, is 14 days.
c. Times are to be based from the initial planned T-0 time for which the item was stowed. They should not be tied to launch attempts or scrub recycle situations.
d. Launch delay time may be extended with mission management/representative approval.
e. If a middeck requires a 24 hours launch delay, it is understood that the middeck has redundant hardware in order to facilitate a pad swap.



Example: 48 hours implies that the item will be removed within two days after the planned T-0 the item was stowed. During this timeframe, there may have been none, one, or two launch attempts depending on scrubs before tanking, delays for weather, or equipment problems, etc. There is a possibility the experiment may have been removed after being installed only one day, again depending on the type and duration of the launch scrub.

Options for delay times are:

- X hour(s)
- X day(s)

6.0 EARLY DESTOW

a. TGHR table requirements are needed for items that require removal from crew compartment within 2 days from landing.
b. Nominally, only full lockers are destowed. Exceptions may be items such as refrigerator/freezer contents, etc.
c. Identify removal from vehicle, not turnover to the customer
d. Items destowed by crew or ASP should not be identified in the table.
e. Once the Orbiter has landed, there are three destow locations (relating to R+ times) items may be destowed: Runway, Orbiter Processing Facility (OPF), and Mate De-mate Device (MDD) facility (Dryden Flight Research Center [DFRC] only).
f. There are three orbiter landing sites: KSC, DFRC, and All Other (White Sands Space Harbor [WSSH]), or Trans-Atlantic sites.
g. Unless otherwise stated in a NOTE, the "All Other" category of landing sites will be on a best effort basis.
h. There are two types of mission endings: Nominal End of Mission (NEOM) and Early End of Mission (EEOM). For EEOM, science may not be viable until after a specific amount of Mission Elapse Time (MET) has passed. For experiments in this category, specify MET > x hours/days. EEOM is supported on best effort basis or as a non-standard service (as defined in the PIP) where destow personnel must be deployed to support landing. Best effort will not guarantee pre-deploy of personnel, but is used to assess priority of destow with limited personnel available.

Options for destow locations are:

- Runway - Destow usually starts between R+1 and R+2 hrs, but may extend due to conditions at the time, such as, safety concerns, crew problems, hatch problems, etc.
- MDD (DFRC only) - nominal destow usually starts between R+24 and R+30 hrs.
- OPF - For landings during the week, destow usually starts between 24 hrs. and 3 days. For landings on Fridays, or during the weekend, destow does not start until Monday or later if the first opportunity is delayed.

Additional Options for Destow

- EEOM - EEOM with the applicable MET > X hrs./days and/or best effort.

7.0 APPROVAL

a. OMRSD Project Manager signature is required in the top right hand corner of the TGHR table.
b. The approval date and revision level must be documented for each line item.
c. If a line item contains any changes, it must be identified as "under review".

Options are:

- Revision level/approval date
- Under review

8.0 NOTES

Notes are to be used for the following reasons and should be considered requirements unless noted as "(reference only)":

- To clarify requirements contained within the table.
- To document exceptions to the groundrules.
- To note which crew compartment payloads/experiments do not require TGHR documentation.

Notes must be documented in alphabetical sequence following the table and made reference to in the applicable line item/requirement field.

GENERAL

Nonstandard service requirements (e.g. late stow, early destow, landing support for EEOM) must be authorized by the PIP/ NSTS 16725.